Remarks

Claims 1 and 4 to 6 are amended and claim 8 is added. Claims 1 to 8 are pending in this application of which only claim 1 is in independent form.

Claims 1 to 7 were rejected under 35 USC 112, second paragraph, for the reasons set forth on page 2 of the action.

Claim 1 is amended herein to provide antecedent basis for the phrases "the pushed on end region" and "the clamping operation". Also, the limitation "determining" in claim 6, line 2, is deleted and an appropriate substitution made therefor.

Claim 4 was objected to because there was no relationship set forth between the variables recited therein. Accordingly, claim 4 is extensively amended herein to set forth the relationship of the diameter (d2, d3) to the force/displacement curve and to recite the position of the maximum value of the clamping force relative to these diameters. Claim 5 is amended to provide a definition of the turning point.

In view of the above, the claims should now be definite as required by the statute.

Claim 1 was rejected under 35 USC 102(b) as being anticipated by Schlei et al as well as under 35 USC 103(a) as being obvious over this reference. The following will show that amended claim 1 patentably distinguishes the invention over this reference.

Schlei et al is directed to a method and an arrangement for pressure-tight attaching a tubular piece to a connecting part

wherein the axial force is determined which occurs at the connecting part. It is this axial force which is used as a switch-off criterion for the clamping operation. A predetermined limit value such as a maximum axial force is provided as the switch-off criterion.

In contrast to Schlei et al, it is not the axial force which is detected but the radial clamping force as set forth in applicant's claim 1 with the clause:

> "detecting the radial clamping force developed during the clamping operation between said clamping ring and said tubular piece;" (emphasis added)

In addition, a force/displacement curve is measured during the clamping operation and a characteristic feature thereof is used as a basis for a criterion for switching off the application of the clamping force. These features are also set forth in claim 1 and are recited in the clauses:

> "observing and measuring a force/displacement curve during said clamping operation; and,
>
> utilizing a characteristic feature of said force/displacement curve as a basis for a criterion for switching off the application of said clamping force."

These measurement quantities of radial force and displacement are shown in the measuring curve of FIG. 1 of the applicant's drawings.

In view of the above, it can be seen that an entirely different force is determined and evaluated. Schlei et al provide no suggestion as to the determination of this clamping force, let alone, for measuring a force/displacement curve during

the clamping operation and utilizing a characteristic feature thereof as a criterion for switching off the application of the clamping force. Accordingly, there is no suggestion is Schlei et al which would enable our person of ordinary skill to hit upon the idea of utilizing a radial clamping force in combination with a measured force/displacement curve as set forth in applicant's claim 1.

In view of the above, claim 1 should now patentably distinguish the invention over Schlei et al and be allowable.

Added claim 8 is even further remote from Schlei et al. In claim 8, the force/displacement curve is defined as being a plot of the clamping force (K) as a function of the diameter (d) which is the diameter between the clamping jaws utilized to apply the clamping force to the clamping ring. There is no suggestion whatsoever in Schlei et al which could lead our person of ordinary skill to arrive at a force/displacement curve wherein the radial clamping force is plotted as a function of the displacement of the clamping jaws. Instead, Schlei et al simply measures an axially directed force on the connecting part 22 utilizing a pressure measuring device 14. The proportional electric output signal of the pressure measuring device 14 is interpreted in an evaluation unit and effects a switch-off of the hydraulic drive when a predetermined limit value is reached. Accordingly, there is no suggestion in Schlei et al which could lead our person of ordinary skill to measure the diameter between the clamping jaws and to use this dimension to obtain a characteristic feature of the force/displacement curve as a basis for a criterion for switching off the application of the clamping

force.

In view of the above, claim 8 should likewise patentably distinguish the invention over Schlei et al and be allowable.

For the reasons advanced above, applicant respectfully submits that claims 1 to 8 patentably distinguish his invention over Schlei et al and should be allowable.

Reconsideration of the application is respectfully requested.

Respectfully submitted,

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Version with Markings to show Changes made:

In the Claims:

Please amend claims 1 and 4 to 6 as follows:

1. (Amended) A method for force-tightly attaching a tubular piece made of elastomeric material to a connecting part, the method comprising the steps of:

pushing an open end of said tubular piece onto said connecting part so that a pushed on end region of said tubular piece is on said connecting part;

positioning a metal clamping ring around said tubular piece at the pushed on end region thereof;

radially applying a clamping force (K) during a clamping operation to said clamping ring to reduce the diameter of said clamping ring and thereby tightly clamping said tubular piece on said connecting part;

detecting the radial clamping force developed during the clamping operation between said clamping ring and said tubular piece;

observing and measuring a force/displacement curve during said clamping operation; and,

utilizing a characteristic feature of said force/displacement curve as a basis for a criterion for switching off the application of said clamping force.

4. (Amended) The method of claim 1, wherein said clamping force is radially applied to said clamping ring with clamping jaws

having a diameter (d) therebetween corresponding to said diameter of said clamping ring; said force/displacement curve is a plot of said clamping force (K) as a function of said diameter (d) measured along an abscissa; said force/displacement curve includes a segment during which a plastic deformation of said clamping ring takes place as said diameter (d) is reduced from a diameter (d2) to a diameter (d3) and, after said diameter (d3), said clamping force (K) is increased and causes a deformation also of said connecting part as said diameter (d) is further reduced beyond said diameter (d3) whereupon a maximum value of said clamping force (K) greater than a value K_{min} thereof is reached corresponding to a maximum of said curve; and, the maximum of said curve is only used for evaluation when $K > K_{min}$ and/or $d < d3$ is satisfied as an additional criterion.

5. (Amended) The method of ~~claim 1,~~ claim 4, wherein said maximum of said curve defines a turning point whereat the shape of said curve changes from positive slope to negative slope; and, ~~a~~ said turning point of said force/displacement curve is used as a switchoff criterion so that said application of said clamping force is switched off after said clamping force falls off from said maximum by a predetermined increment (ΔK).

6. (Amended) The method of claim 1, comprising the further step of ~~determining~~, after the clamping operation, making a determination as to whether the obtained parameter (force/displacement) lies within a defined tolerance band.